

AMENDMENTS TO THE CLAIMS

1-16. (Canceled)

17. (Previously presented) A reader interfacing device, configured to:

establish a first communication path with a reader configured to emit and receive interrogating radiation at a first radiation frequency; and

establish a second communication path with a remote tag or smart label configured to be interrogated using radiation of a second frequency different from the first frequency by at least an order of magnitude;

wherein the reader interfacing device is further configured to receive the interrogating radiation at the first radiation frequency from the reader, translate the received interrogating radiation into an output signal, and radiate the output signal at the second radiation frequency to the remote tag or smart label.

18. (Previously presented) The reader interfacing device of claim 17, comprising a power converter configured to convert the interrogating radiation received from the reader and thereby generate power supply potentials for powering the reader interfacing device, wherein the generated power supply potentials are supplemental to power provided from an external source.

19. (Previously presented) The reader interfacing device of claim 17, wherein the reader interfacing device is further configured to be mutually magnetically coupled to the reader for receiving the interrogating radiation therefrom and for providing a modulated load thereto for communicating back to the reader.

20. (Previously presented) The reader interfacing device of claim 19, comprising a first loop antenna configured to magnetically couple to a corresponding second loop antenna of the reader.

21. (Previously presented) The reader interfacing device of claim 20, wherein the reader interfacing device further comprises a modulated field-effect transistor connected to the first loop antenna and configured to provide a variable load detectable at the reader.

22. (Previously presented) The reader interfacing device of claim 17, wherein the second frequency is in a range of 300 MHz to 90 GHz.

23. (Previously presented) The reader interfacing device of claim 22, wherein the reader interfacing device is further configured to emit radiation to the remote tag or smart label and receive radiation therefrom using patch antennas.

24. (Previously presented) The reader interfacing device of claim 22, wherein the second frequency is substantially in a range of 2 GHz to 3 GHz.

25. (Previously presented) The reader interfacing device of claim 17, comprising a translator configured to convert between a modulation format used by the reader for modulating information onto the interrogating radiation to be received by the reader interfacing device and a modulation format used by the remote tag or smart label for communicating to and from the reader interfacing device.

26. (Previously presented) The reader interfacing device of claim 25, wherein the translator comprises:

an amplitude demodulator configured to demodulate a first received signal generated in the reader interfacing device in response to receiving the interrogating radiation from the reader and thereby generating a first demodulated signal; and

a modulator configured to receive a carrier signal at the second frequency and modulate the carrier signal with the first demodulated signal to generate radiation for interrogating the remote tag or smart label.

27. (Previously presented) The reader interfacing device of claim 26, wherein the translator further comprises a demodulator configured to heterodyne mix a second received signal generated in response to receiving radiation from the remote tag or smart label with the carrier signal to generate a second demodulated signal for use in providing load modulation detectable at the reader.

28. (Previously presented) The reader interfacing device of claim 27, wherein the carrier signal is generated by a microwave oscillator frequency locked to the first frequency.

29. (Currently amended) The reader interfacing device of claim 17, wherein the reader interfacing device is further configured to establish the first communication path with an optical reader via an optical interface.

30. (Currently amended) The reader interfacing device of claim 29, wherein the optical reader comprises a laser scanner, wherein the reader interfacing device ~~further~~ comprises a ~~laser scanner~~ and a liquid crystal display (LCD), and wherein the laser scanner is configured to scan information presented on the LCD to provide information for exchange between the optical reader and the reader interfacing device.

31. (Previously presented) The reader interfacing device of claim 17, comprising an optical interface configured to establish the second communication path between the reader interfacing device and the remote tag or smart label.

32. (Currently amended) A system, comprising:  
a reader interfacing device;  
a reader configured to emit and receive interrogating radiation at a first radiation frequency; and

a remote tag or smart label configured to receive radiation at a second frequency different from the first frequency by at least an order of magnitude;

wherein the reader is further configured to communicate through the reader interfacing device to the remote tag or smart label, and wherein the remote tag or smart label is configured to generate a return signal at the [[first]] second radiation frequency that is translated into an output signal by the reader interfacing device and communicated to the reader as radiation at the second first radiation frequency.

33. (Previously presented) The system of claim 32, wherein the reader interfacing device is configured to be mutually magnetically coupled to the reader for receiving the interrogating radiation therefrom and for providing a modulated load thereto for communicating back to the reader.

34. (Previously presented) The system of claim 33, wherein the reader interfacing device comprises a translator configured to convert between a modulation format used by the reader for modulating information onto the interrogating radiation to be received by the reader interfacing device and a modulation format used by the remote tag or smart label for communicating to and from the reader interfacing device.

35. (Previously presented) A reader interfacing device, comprising:  
means for emitting and receiving radiation at a first frequency to establish a first communication path with a reader;

means for emitting and receiving radiation at a second frequency to establish a second communication path with a remote tag or smart label configured to be interrogated using radiation at the second frequency, wherein the second frequency is different from the first frequency by at least an order of magnitude;

means for translating radiation received from the reader at the first frequency into a first output signal to be radiated at the second frequency to the remote tag or smart label; and

means for translating radiation received from the remote tag or smart label at the second frequency into a second output signal to be radiated at the first frequency to the reader.

36. (Currently amended) The reader interfacing device of claim 35, further comprising [[a]] means for converting the interrogating radiation received from the reader to thereby generate power supply potentials for powering the reader interfacing device, wherein the generated power supply potentials are supplemental to power provided from an external source.